UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/598,958	09/15/2006	Hidetoshi Ito	112857-607	2591

29175 7590 01/13/2009

BELL, BOYD & LLOYD, LLP
P. O. BOX 1135
CHICAGO, IL 60690

EXAMINER	
HOBBS, LISA JOE	
ART UNIT	**PAPER NUMBER**
1657	
MAIL DATE	**DELIVERY MODE**
01/13/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Advisory Action Before the Filing of an Appeal Brief	**Application No.** 10/598,958	**Applicant(s)** ITO ET AL.	
	Examiner Lisa J. Hobbs	**Art Unit** 1657	

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 19 December 2008 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☒ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:
   a) ☒ The period for reply expires *3* months from the mailing date of the final rejection.
   b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

   Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

AMENDMENTS

3. ☐ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because
   (a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);
   (b) ☐ They raise the issue of new matter (see NOTE below);
   (c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
   (d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

   NOTE: _____. (See 37 CFR 1.116 and 41.33(a)).
4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).
5. ☐ Applicant's reply has overcome the following rejection(s): _____.
6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
7. ☐ For purposes of appeal, the proposed amendment(s): a) ☐ will not be entered, or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.
   The status of the claim(s) is (or will be) as follows:
   Claim(s) allowed: _____.
   Claim(s) objected to: _____.
   Claim(s) rejected: _____.
   Claim(s) withdrawn from consideration: _____.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).
9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing a good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).
10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

11. ☒ The request for reconsideration has been considered but does NOT place the application in condition for allowance because: See Continuation Sheet.
12. ☐ Note the attached Information *Disclosure Statement*(s). (PTO/SB/08) Paper No(s). _____
13. ☐ Other: _____.

/Lisa J. Hobbs/
Primary Examiner
Art Unit: 1657

Continuation of 11. does NOT place the application in condition for allowance because:

First, the rejection of claims 11-20 on the ground of nonstatutory double patenting over claims 14-26 of copending Application No. 10/536,934 is not addressed in the response of 19 December 2008.

Second, applicant's arguments regarding the rejection of claims 11-20 under 35 USC 103(a) has been fully considered and is not deemed persuasive. Applicant argues that the prior art references teach the hydrolysis of water, not the system as disclosed by applicant using ionized cross-linked polyacrylamide gels, which avoid the release of gases. However, Shahinpoor teaches at col. 1, lines 26-28, that that "the creation of sensors and controllable actuators, or synthetic muscles, is known. Sensors and artificial muscles or actuators made from ion-exchange membranes are relatively new but known" and that the polymeric hydrogel components taught by applicants, see Example 1, are known "U.S. Pat. No. 5,100,933, to Tanaka, et al., discloses the use of ionized cross-linked polyacrylamide gels as engines or artificial muscles; the gels can contain a metal ion and are capable of discontinuous volume changes induced by infinitesimal changes in environment. The gel is made by dissolving acrylamide monomers and bisacrylamide monomers in water, adding a polymerization initiator (in particular, ammonium persulfate and TEMED, or tetramethyl-ethylene-diamine) to the solution, soaking the gel sample in water to wash away all residual monomers and initiators, immersing the gel in a basic solution of TEMED for up to 60 days, then immersing the gel in a solvent (in particular, acetone, acetone in water, ethanol and water, or methanol and water). The primary disadvantages of these actuators are generally that the response time of the gel is much longer than that of other known actuator components and that the gel must be contained in the solvent bath. The gels are also mechanically brittle and easily broken" (col. 2, lines 3-20). Also, Madden et al. teach that the "electrolyte may be a liquid (which may require actuator encapsulation), a gel, or a solid"…specifically, the electrolyte may be a polymethylmethacrylate (PMMA) gel containing a salt dopant (col. 4, lines 15-20. As well, Hirai et al. teach that in addition to the PVA gel swollen with DMSO, they were able to achieve gel deformation and motive force using PVC and poly(methyl methacrylate) (p. 199).

Applicants argue that Adolf does not teach the palladium catalyst or the coil/mesh structure, however, Madden et al. teach electrodes of gold, palladium, platinum, etc., (col. 6 and claims 21-23) and Shahinpoor teaches electrodes of noble metals, including platinum, palladium, and nickel (col. 6) and Adolf et al. teach that platinum may be used in the actuator (col. 7). Madden et al. specifically teach that the electrode comprises a coiled metal wire (claim 16).

Applicants argue that each of the references teaches away from the idea of the instant invention, however, each of the references, while disclosing multiple and various types and species of polymer actuators, discloses that polymer gel actuators are well known in the art, several teach that the use of cross-linked gel actuators comprising acrylaminde components are known, several teach that electrodes of metal, such as palladium, are known, and several teach that electrodes in various configurations such as mesh and coil are known. Finally, each teaches that one of skill in the art knows how to place the electrodes to achieve optimal activity for the desired reaction of that, particular gel actuator.